TABLE 42.20–60(B)(2)—PERCENTAGE OF DEDUCTION FOR TYPE "B" VESSELS

[*Percentage of deduction* [1]]

	Total effective length of superstructures and trunks											
	Line	0	0.1*L*	0.2*L*	0.3*L*	0.4*L*	0.5*L*	0.6*L*	0.7*L*	0.8*L*	0.9*L*	1.0*L*
Vessels with forecastle and without detached bridge	I	0	5	10	15	23.5	32	46	63	75.3	87.7	100
Vessels with forecasle and detached bridge	II	0	6.3	12.7	19	27.5	36	46	63	75.3	87.7	100

[1] Percentages at intermediate lengths of superstructures and trunks shall be obtained by linear interpolation.

(c) For vessels of Type ''B'':

(1) Where the effective length of a bridge is less than 0.2*L*, the percentages shall be obtained by linear interpolation between lines I and II;

(2) Where the effective length of a forecastle is more than 0.4*L*, the percentages shall be obtained from line II; and,

(3) Where the effective length of a forecastle is less than 0.07*L*, the percentages in Table 42.20–60(b)(2) of this paragraph shall be reduced by:

$$5(0.07L - f)/0.07L$$

L is the length of vessel as defined in § 42.13–15(a),

f is the effective length of the forecastle.

[CGFR 68–60, 33 FR 10065, July 12, 1968, as amended by CGFR 68–126, 34 FR 9015, June 5, 1969]

§ 42.20–65 Sheer.

(a) *General.* (1) The sheer shall be measured from the deck at side to a line of reference drawn parallel to the keel through the sheer line amidships.

(2) In vessels designed with a rake of keel, the sheer shall be measured in relation to a reference line drawn parallel to the design load waterline.

(3) In flush deck vessels and in vessels with detached superstructures the sheer shall be measured at the freeboard deck.

(4) In vessels with topsides of unusual form in which there is a step or break in the topsides, the sheer shall be considered in relation to the equivalent depth amidships.

(5) In vessels with a superstructure of standard height which extends over the whole length of the freeboard deck, the sheer shall be measured at the superstructure deck. Where the height exceeds the standard the least difference (*Z*) between the actual and standard heights shall be added to each end ordinate. Similarly, the intermediate ordinates at distances of 1/6*L* and 1/3*L* from each perpendicular shall be increased by 0.444Z and 0.111Z respectively.

(6) Where the deck of an enclosed superstructure has at least the same sheer as the exposed freeboard deck, the sheer of the enclosed portion of the freeboard deck shall not be taken into account.

(7) Where an enclosed poop or forecastle is of standard height with greater sheer than that of the freeboard deck, or is of more than standard height, an addition to the sheer of the freeboard deck shall be made as provided in paragraph (c)(4) of this section.

(b) *Standard sheer profile.* (1) The ordinates of the standard sheer profile are given in Table 42.20–65(b)(1):

TABLE 42.20–65(B)(1)—STANDARD SHEER PROFILE

[Where *L* is in feet]

	Station	Ordinate (in inches)	Ordinate (in inches)	Factor
After half	After Perpendicular.	0.1	*L*+10	1
	1/6 *L* from A.P	0.0444 ...	*L*+4.44 ...	3
	1/3 *L* from A.P	0.0111 ...	*L*+1.11 ...	3
	Amidships	.....	0	1
Forward half.	Amidships	.....	0	1
	1/3 *L* from F.P	0.0222 ...	*L*+2.22 ...	3
	1/6 *L* from F.P	0.0888 ...	*L*+8.88 ...	3
	Forward Perpendicular.	0.2	*L*+20	1

(c) *Measurement of variation from standard sheer profile.* (1) Where the sheer profile differs from the standard, the four ordinates of each profile in the forward or after half shall be multiplied by the appropriate factors given

in the table of ordinates. The difference between the sums of the respective products and those of the standard divided by 8 measures the deficiency or excess of sheer in the forward or after half. The arithmetical mean of the excess or deficiency in the forward and after halves measures the excess or deficiency of sheer.

(2) Where the after half of the sheer has an excess and the forward half of the sheer has a deficiency, no credit shall be allowed for the part in excess and deficiency only shall be measured.

(3) Where the forward half of the sheer profile exceeds the standard, and the after portion of the sheer profile is not less than 75 percent of the standard, credit shall be allowed for the part in excess; where the after part is less than 50 percent of the standard, no credit shall be given for the excess sheer forward. Where the after sheer is between 50 percent and 75 percent of the standard, intermediate allowances may be granted for excess sheer forward.

(4) Where sheer credit is given for a poop or forecastle, the following formula shall be used:

$$s=(y/3)(L'/L)$$

where:

s=sheer credit, to be deducted from the deficiency or added to the excess of sheer.
y=difference between actual and standard height of superstructure at the end ordinate.
L'=mean enclosed length of poop or forecastle up to a maximum length of $0.5L$.
L=length of vessel as defined in § 42.13–15(a).

(i) The formula in this paragraph (c)(4) of this section provides a curve in the form of a parabola tangent to the actual sheer curve at the freeboard deck and intersecting the end ordinate at a point below the superstructure deck a distance equal to the standard height of a superstructure. The superstructure deck shall not be less than standard height above this curve at any point. This curve shall be used in determining the sheer profile for forward and after halves of the vessel.

(d) *Correction for variations from standard sheer profile.* (1) The correction for sheer shall be the deficiency or excess of sheer (see paragraphs (c) (1) to (4) inclusive of this section) multiplied by:

$$0.75-(S/2L)$$

where:

S is the total length of enclosed superstructures.

(e) *Addition for deficiency in sheer.* (1) Where the sheer is less than the standard, the correction for deficiency in sheer (see paragraph (d)(1) of this section) shall be added to the freeboard.

(f) *Deduction for excess sheer.* (1) In vessels where an enclosed superstructure covers $0.1L$ before and $0.1L$ abaft amidships, the correction for excess of sheer as calculated under the provisions of paragraph (d)(1) of this section shall be deducted from the freeboard; in vessels where no enclosed superstructure covers amidships, no deduction shall be made from the freeboard; where an enclosed superstructure covers less than $0.1L$ before and $0.1L$ abaft amidships, the deduction shall be obtained by linear interpolation. The maximum deduction for excess sheer shall be at the rate of 1½ inches per 100 feet of length.

[CGFR 68–60, 33 FR 10066, July 12, 1968, as amended by CGFR 68–126, 34 FR 9016, June 5, 1969]

§ 42.20–70 Minimum bow height.

(a) The bow height defined as the vertical distance at the forward perpendicular between the waterline corresponding to the assigned summer freeboard and the designed trim and the top of the exposed deck at side shall be not less than:

(1) For vessels below 820 feet in length,

$$0.672L[1-(L/1640)][1.36/(C_b+0.68)] \text{ inches;}$$

where:

L is the length of the vessel in feet.
C_b is the block coefficient which is to be taken as not less than 0.68.

(2) For vessels of 820 feet and above in length,

$$275.6[1.36/(C_b+0.68)] \text{ inches;}$$

where:

C_b is the block coefficient which is to be taken as not less than 0.68.

(b) Where the bow height required in paragraph (a) of this section is obtained by sheer, the sheer shall extend for at least 15 percent of the length of the vessel measured from the forward